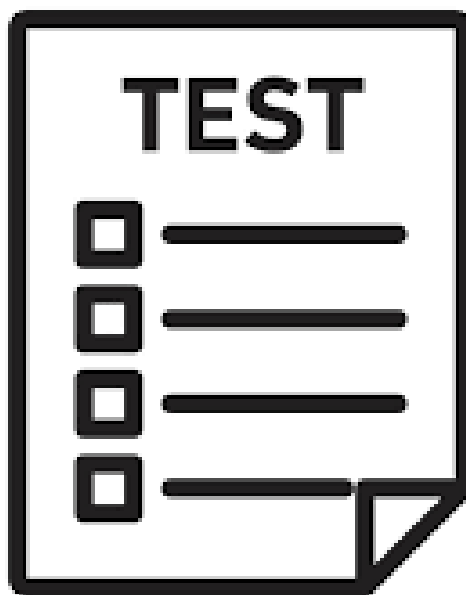




Hydro-TestView User Guide



To re-order quote part number:	HD1198
Revision:	1.0.0
Revision date:	October 2025

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The customer in applying the product described in this documentation accepts that the product is a programmable electronic system which is inherently complex, and which may not be completely free of errors. In doing so the customer therefore undertakes responsibility to ensure that the product is properly installed commissioned operated and maintained by competent and suitably trained persons and in accordance with any instructions or safety precautions made available or good engineering practice and to thoroughly verify the use of the product in the particular application.

ERRORS IN DOCUMENTATION

The product described in this documentation is subject to continuous development and improvement. All information of a technical nature and particulars of the product and its use including the information and particulars contained in this documentation are given by Hydronix in good faith.

Hydronix welcomes comments and suggestions relating to the product and this documentation.

ACKNOWLEDGEMENTS

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If your feedback is concerning an Atex certified product or associated service, it would be helpful for you to give us your contact details and the model number and serial number of the product if possible. This will enable us to contact you with any relevant safety advice should this be necessary. It is not obligatory to leave your contact details, and any information will be treated as confidential.

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Revision history

Revision No	Date	Description of Change (this row should automatically be bold)
1.0.0	Oct 2025	First Release

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1 Introduction

This guide describes how to install and use a Hydro-TestView diagnostics test box (HVT01) with the Hydro-TestView Software (HS0131) for Windows PCs to evaluate the hardware functionality of a sensor and provide diagnostics reports to Hydronix.

2 Software Installation

The Hydro-TestView software can be downloaded free of charge from the Hydronix Website at <http://www.hydronix.com>

The utility installation file is an executable file (.exe). Once downloaded, the software can be installed by double clicking on the file.

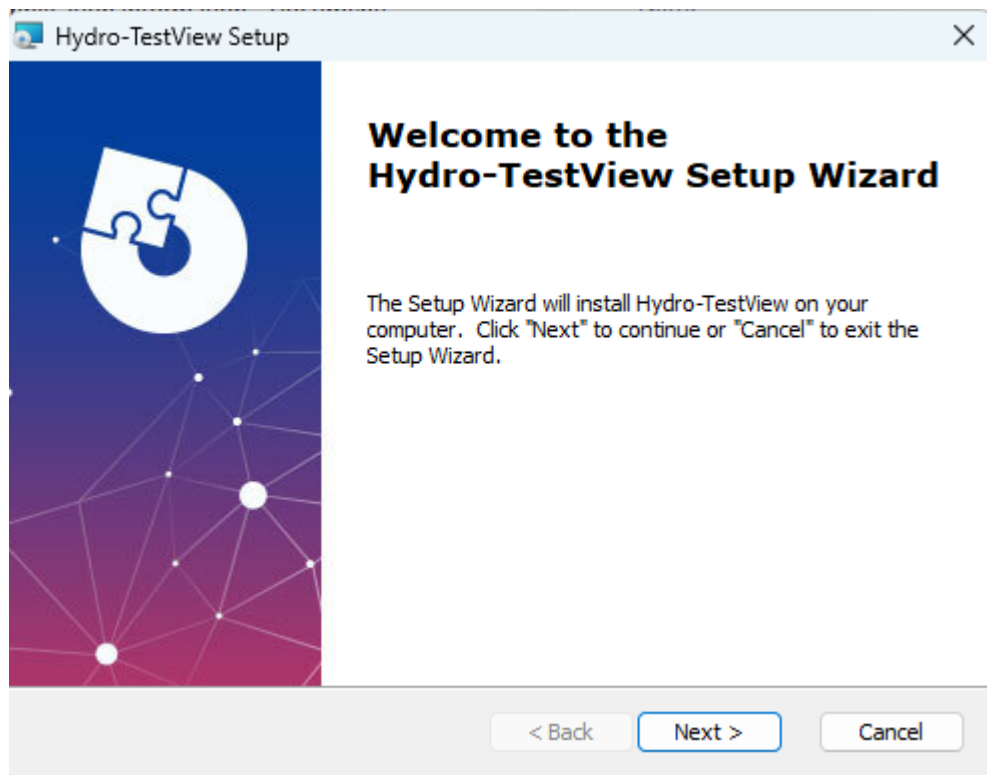


Figure 1 - Hydro-TestView Installer

Press 'Next' and make choices on program icons and installation locations, and then proceed to install the software.

The software can be found in the start menu by typing "HydroTestView".

3 Test box Driver Installation

3.1 Automatic Installation

If the PC has access to automatic driver updates, then plugging in the test box will initiate driver installation. For manual installation, the Hydro-TestView Test box drivers can be downloaded from www.hydronix.com.

3.2 Manual Installation

If the PC does not have access to automatic updates the drivers (HS0132) can be downloaded from the Hydronix website. These should be unzipped to an accessible drive.

Open 'Device Manager' on the Windows PC and locate the devices. Use the Add/Remove Hardware Wizard to install each device (there will be four serial converters).

3.3 Checking the Hardware Installation

If correctly installed, four USB Serial Converters will appear in 'Universal bus controllers'. The 'USB OK' light on the test box will be illuminated.

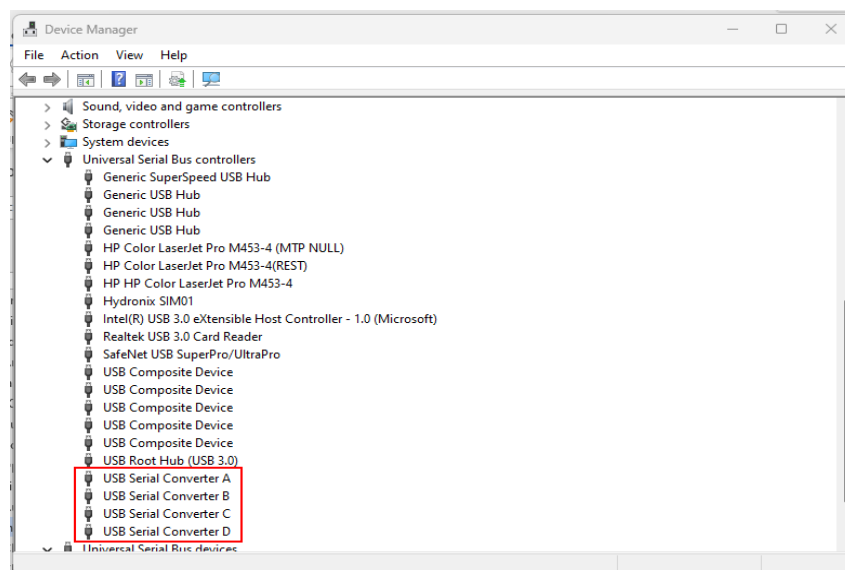


Figure 2 - Hydro-TestView Test Box Drivers Installed

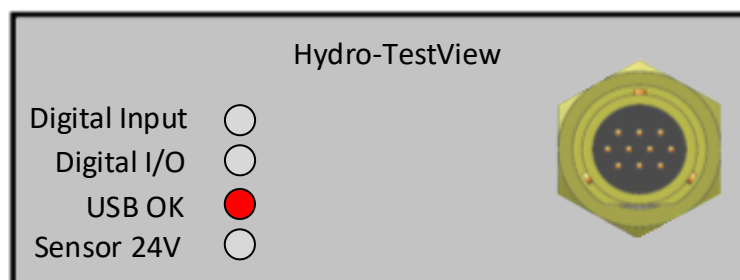


Figure 3 - Hydro-TestView Box with Drivers installed (no 24VDC)

4 Connecting the equipment

The test box should be connected to a Windows PC that has access to the internet, 24VDC power and the sensor to evaluate as shown in Figure 4.

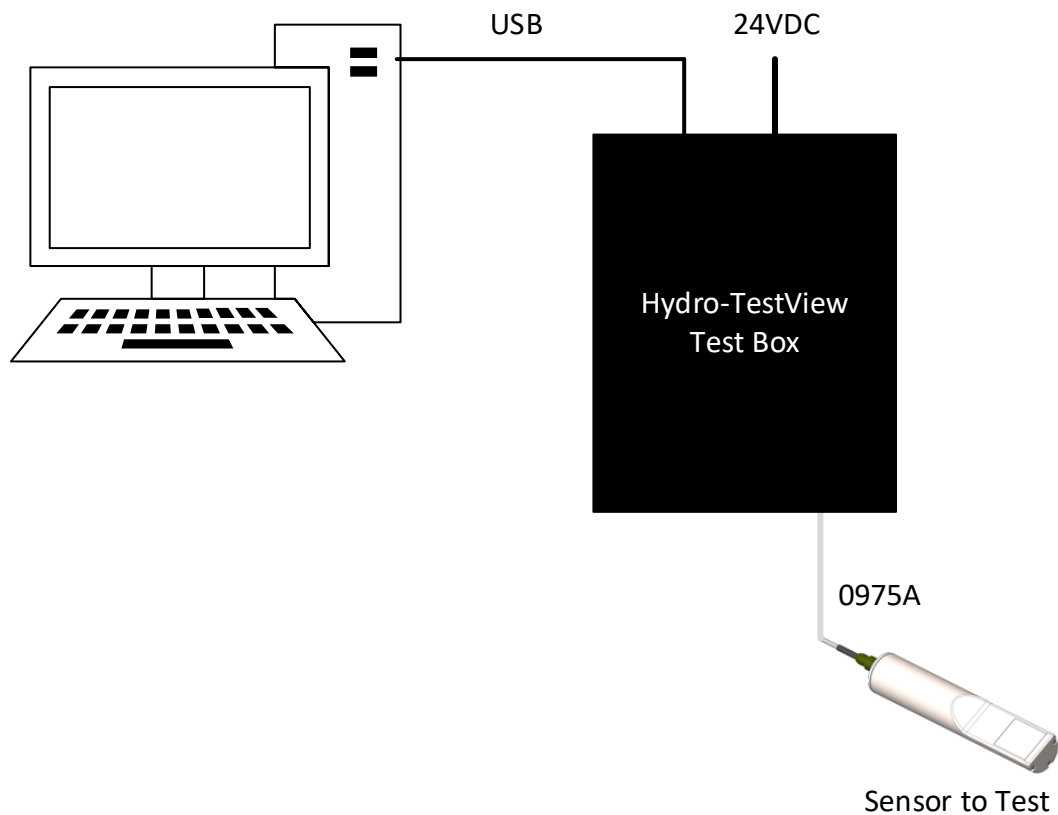


Figure 4 - System Overview

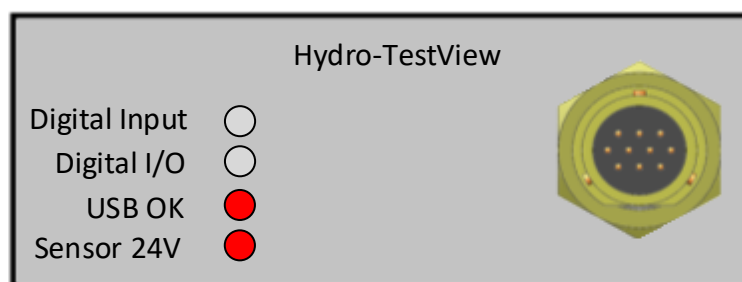


Figure 5 - Hydro-TestView Test Box with 24VDC Power

1 Automatic Test

Ensure the Hydro-View Test box is connected to the PC, 24VDC power is applied and the Test box is connected to the sensor to test. Start the Hydro-TestView software. Ensure The text box lights are as shown in Figure 6 and the status bar at the bottom left of the software says “HydroTestView Test Box has been found and initialised” (Figure 7).

If it states it has failed unplug the test box, reinstall the drivers, reboot and restart the Hydro-TestView software. If problems persist contact support@hydronix.com.

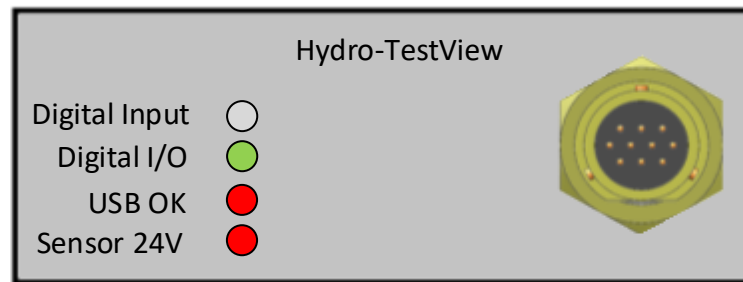


Figure 6 - Initialised Hydro-TestView box

Press the “Test Sensor” button.

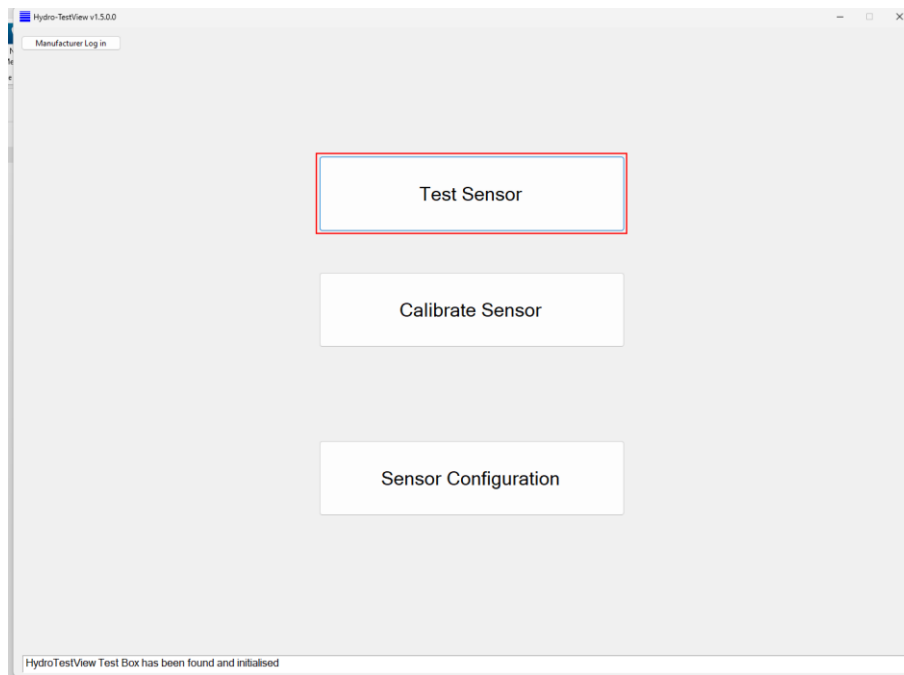


Figure 7 - Hydro-TestView Main Menu

A search will be performed to find the connected sensor. If no sensor is found, then “Found 0 Sensors” will be displayed in the status bar at the bottom left. Check the sensor is connected to the test box and that “Sensor 24V” indicator is red. If the ‘Sensor 24V’ indicator is off, check that the test box is connected to a 24VDC power supply.

Once the sensor has been found, ensure that the ceramic face of the sensor is clean, dry, and pointing into air.

Check that the Automatic Test Type is set to “Full” and then press “Automatic Tests” (Figure 8_). Allow the tests to proceed. This will take several minutes.

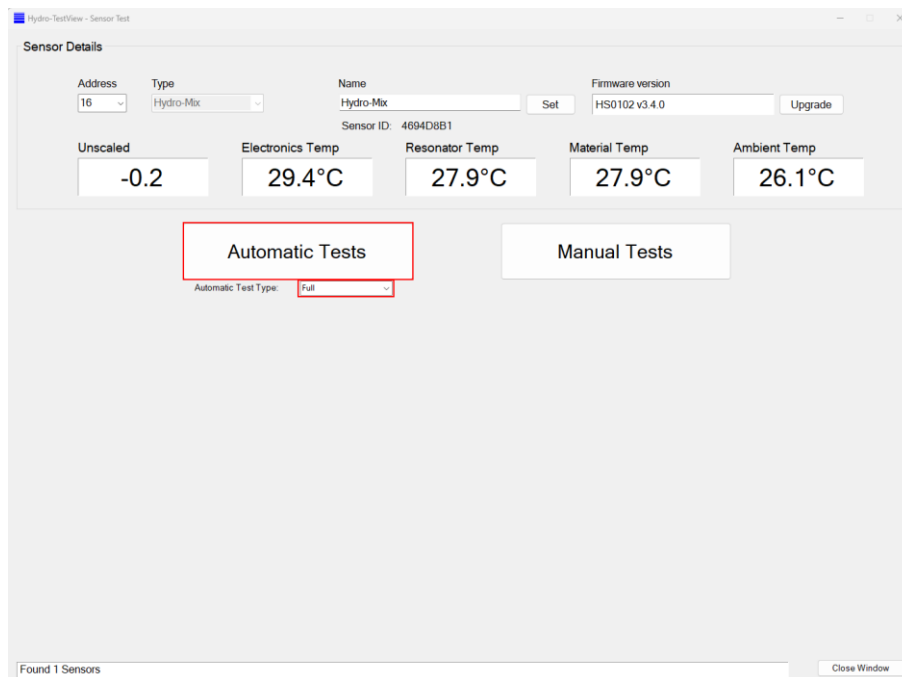


Figure 8 - Hardware Test Page

Once all the tests in the Test Results box are either green (passed) or red (failed) press “Record Results” (Figure 9).

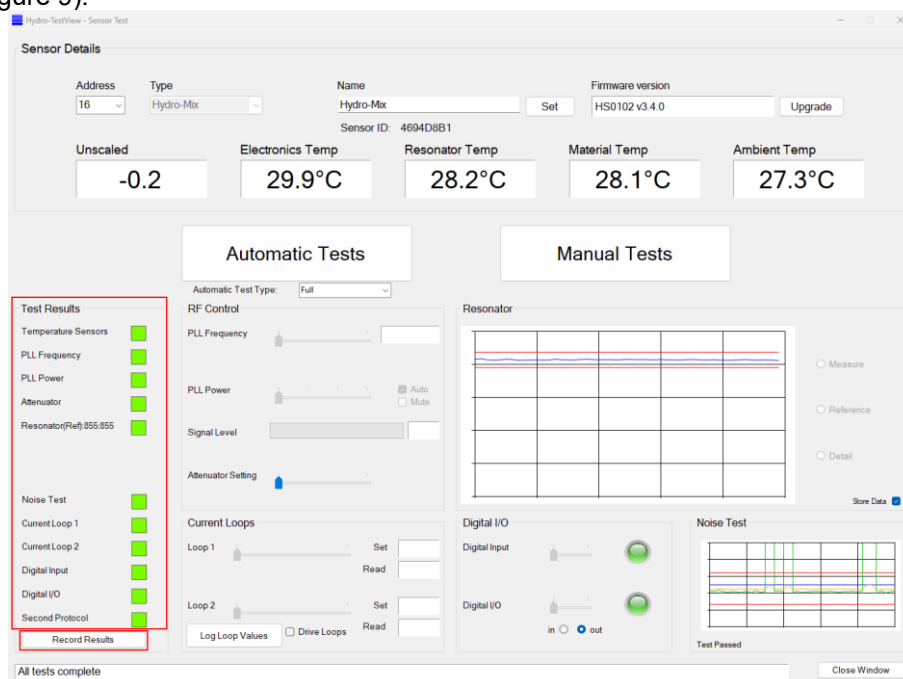
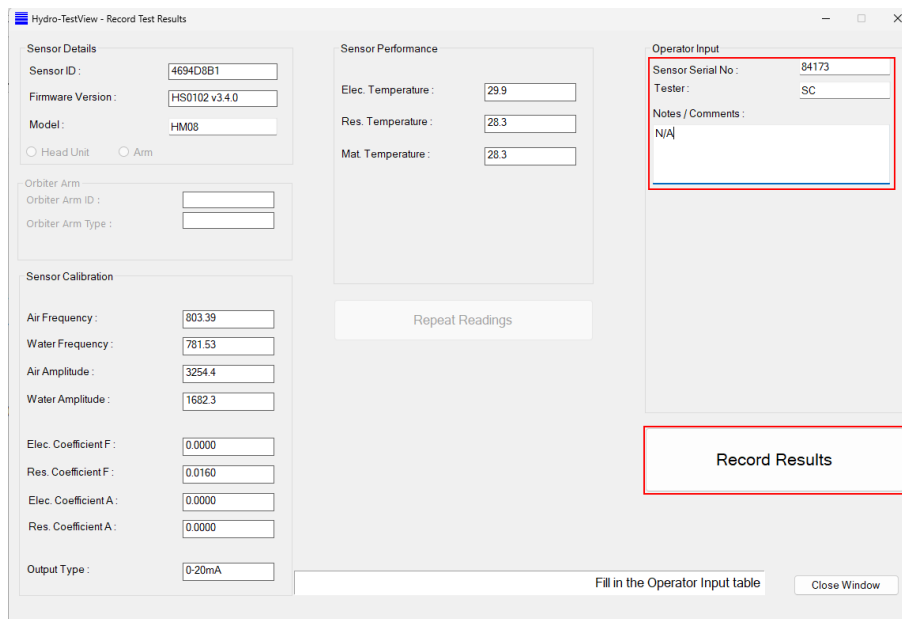


Figure 9 - Completed Automatic Tests

Allow the “Record Test Results” page to populate. Complete the information in the “Operator Input” group box (Figure 10).

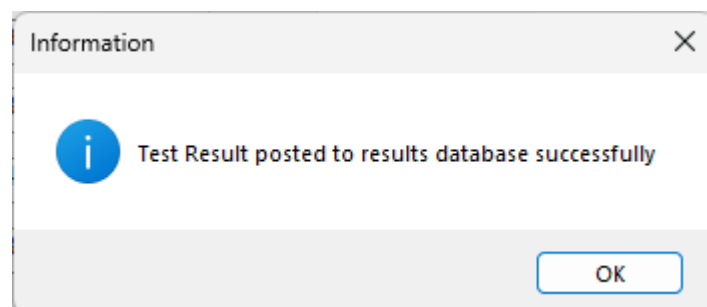


The screenshot shows the 'Hydro-TestView - Record Test Results' window. It is divided into several sections: 'Sensor Details' with fields for Sensor ID (4694D8B1), Firmware Version (HS0102 v3.4.0), and Model (HM08); 'Orbiter Arm' with fields for Orbiter Arm ID and Type; 'Sensor Calibration' with fields for Air/Water Frequency, Amplitude, and Coefficients; 'Sensor Performance' with temperature readings; 'Operator Input' with fields for Sensor Serial No (84173), Tester (SC), and Notes/Comments; and a 'Record Results' button. A 'Repeat Readings' button is also present. At the bottom, there is a 'Fill in the Operator Input table' label and a 'Close Window' button.

Figure 10 - Test Results Page

If a 'Save As' dialog box appears, choose a location to store a local copy of the test results and press save.

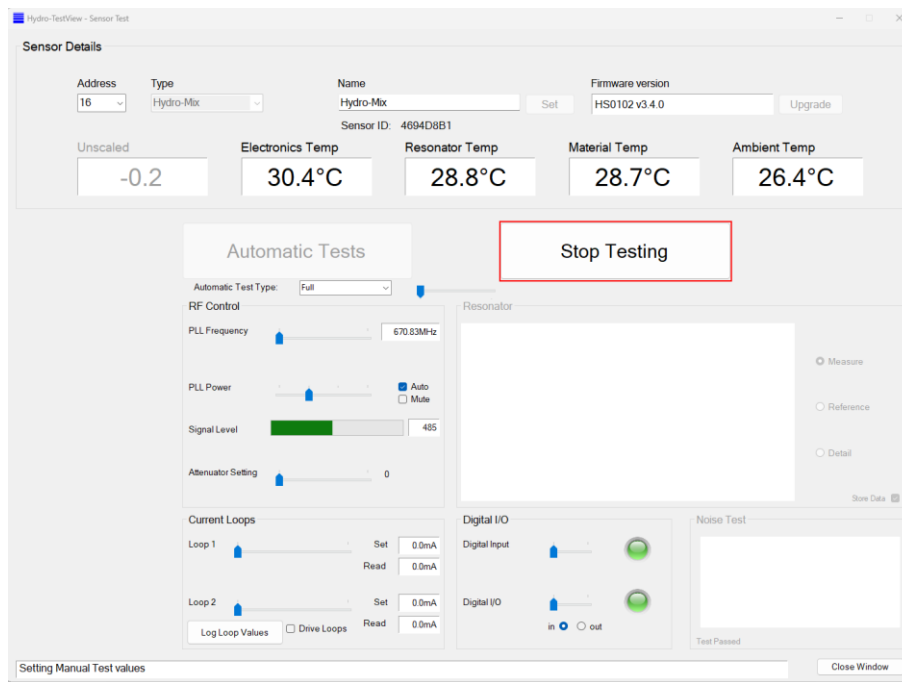
If the test results are successfully uploaded to the Hydronix Sever a success message will appear (Figure 11). If an error message appears check the internet connection.

**Figure 11 - Test Results successfully uploaded**

Press 'OK' and close the window. To discuss results, contact support@hydronix.com, quoting the serial number of the sensor and the time and date of the test.

2 Manual Tests

From the Hardware Test Page press "Manual Tests." It is now possible to perform tests manually such as setting and logging the analogue loops to specific values, and checking the state of the I/O. To Stop manual testing press "Stop Testing" (Figure 12).

**Figure 12 - Manual Testing**

3 Other Functions

It is possible to view live temperatures and the current unscaled value in the 'Sensor Details' section at the top of the page. It is also possible to set the sensor name and upgrade the sensor Firmware.

4 Performing an Air/Water Calibration

If the sensor no longer reads 0 unscaled (± 0.2) when clean, dry, and pointing at air or does not read close to 100 when the ceramic face is submerged in water then it is necessary to recalibrate the sensor. This can be done from the “Sensor Calibration” (Figure 13 and Figure 14) page which can be accessed by pressing “Calibrate Sensor” on the main menu page.

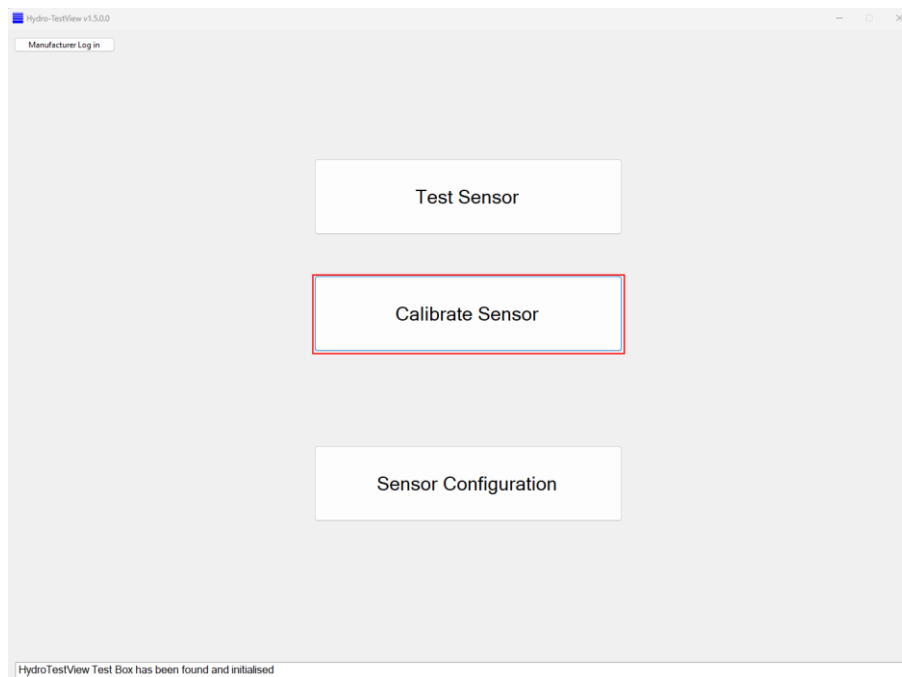


Figure 13 - Calibrate Sensor Option

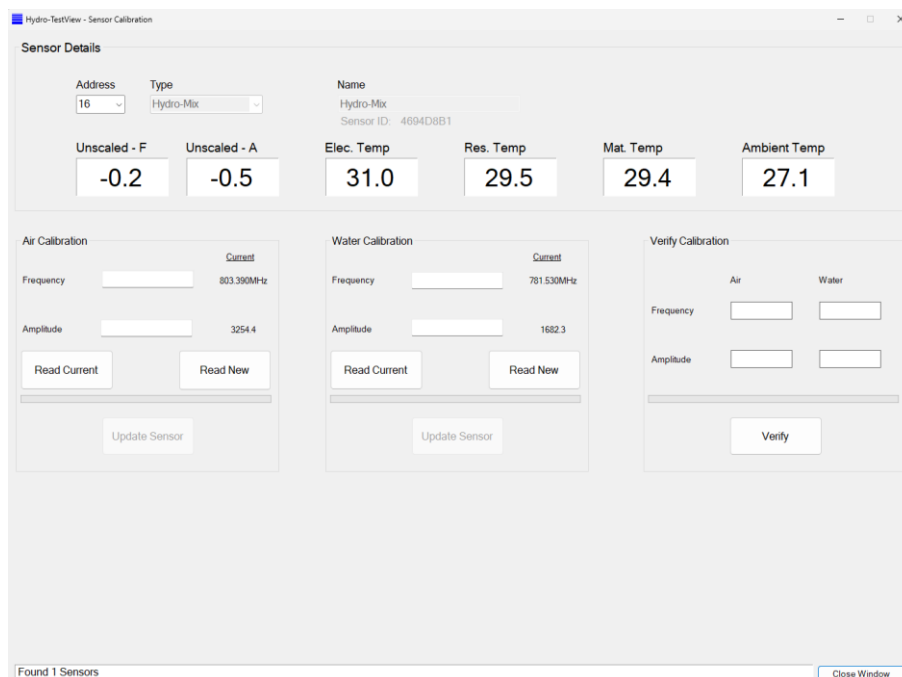


Figure 14 - Calibrate Sensor Screen

Ensure the sensor is clean, dry and the ceramic is pointing into air. Press “Read New” in the Air calibration box (Figure 15).

The screenshot shows the 'Hydro-TestView - Sensor Calibration' window. At the top, under 'Sensor Details', there are fields for Address (16), Type (Hydro-Mix), Name (Hydro-Mix), and Sensor ID (4694D8B1). Below these are six temperature readouts: Unscaled - F (-0.3), Unscaled - A (-0.2), Elec. Temp (32.1), Res. Temp (30.2), Mat. Temp (30.2), and Ambient Temp (28.1). The main section has three calibration boxes: 'Air Calibration', 'Water Calibration', and 'Verify Calibration'. The 'Air Calibration' box contains fields for Frequency (803.409MHz) and Amplitude (3255.4), with 'Current' and 'Read New' buttons. The 'Water Calibration' box contains fields for Frequency (781.530MHz) and Amplitude (1682.3), with 'Current' and 'Read New' buttons. The 'Verify Calibration' box has fields for Air and Water Frequency and Amplitude, and a 'Verify' button. A red box highlights the 'Read New' button in the Air Calibration section. At the bottom right is a 'Close Window' button.

Figure 15- Read Air Value and Update

It is now possible to press “Update Sensor”. The “Unscaled F” Value displayed at the top will now read 0 ± 0.1 Unscaled.

Submerge the ceramic face of the sensor and ensure it is surrounded by at least 150mm of water on all sides. Use a clamp to ensure the sensor is stable and stationary (Figure 16).

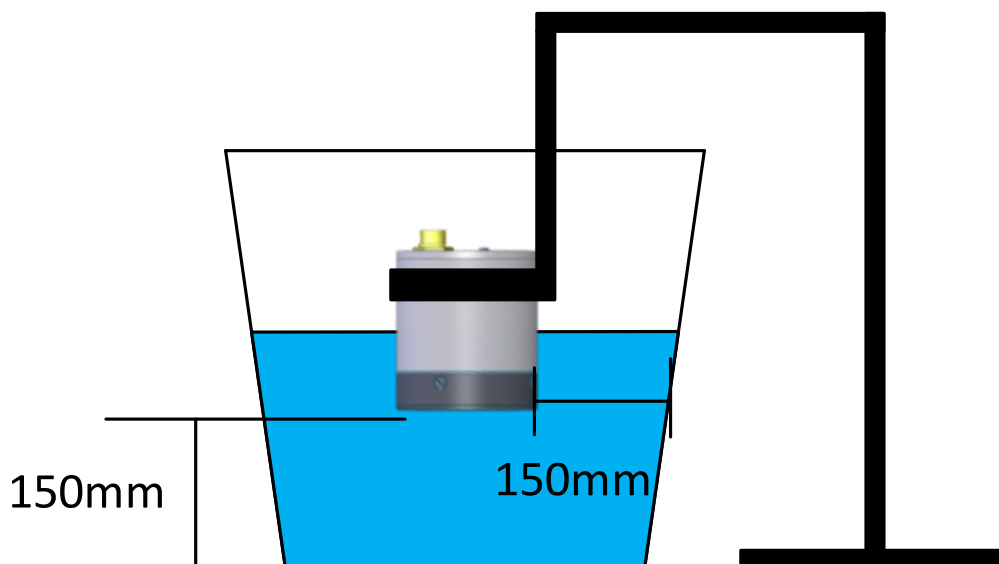


Figure 16 - Water Calibration

Press “Read New” in the Water Calibration box. Press “Update Sensor” (Figure 17).

Hydro-TestView - Sensor Calibration

Sensor Details

Address: 16 Type: Hydro-Mix Name: Hydro-Mix Sensor ID: 4694D8B1

Unscaled - F: 0.0 Unscaled - A: -0.2 Elec. Temp: 32.2 Res. Temp: 30.4 Mat. Temp: 30.4 Ambient Temp: 26.9

Air Calibration

Frequency: 803.409MHz Current: 803.409MHz

Amplitude: 3255.4

Read Current Read New

Update Sensor

Water Calibration

Frequency: 784.606MHz Current: 784.606MHz

Amplitude: 1877.4

Read Current Read New

Update Sensor

Verify Calibration

Frequency: Air Water

Amplitude: Air Water

Verify

Close Window

Figure 17 - Update Water Calibration

To verify the calibration press “Verify”. Put the sensor in a water bath as described in Figure 16. Take another Water measurement then dry the sensor thoroughly (in the case of Hydro-Mix Sensors this will involve removing the protection ring). For sensors with crevices use dry compressed air to push the water out. Follow the next prompt to take another air measurement (Figure 18).

Hydro-TestView - Sensor Calibration

Sensor Details

Address: 16 Type: Hydro-Mix Name: Hydro-Mix Sensor ID: 4694D8B1

Unscaled - F: -0.2 Unscaled - A: 0.1 Elec. Temp: 32.6 Res. Temp: 30.8 Mat. Temp: 30.8 Ambient Temp: 27.3

Air Calibration

Frequency: 803.409MHz Current: 803.409MHz

Amplitude: 3255.4

Read Current Read New

Update Sensor

Water Calibration

Frequency: 784.606MHz Current: 784.606MHz

Amplitude: 1877.4

Read Current Read New

Update Sensor

Verify Calibration

Frequency: Air Water

Amplitude: Air Water

Verify

Verification Successful

Close Window

Figure 18 – Verified Air/Water Values

If successful, a notification will pop up stating “Verification Successful”. If Verification fails a notification will pop up stating the failure and displaying the limits of Air and Water allowed (Figure 19).

Air tolerance is based on 0 unscaled and water tolerance is based on 100 unscaled.

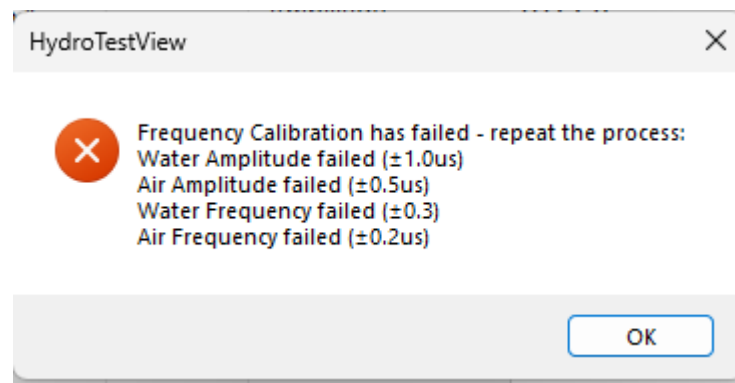


Figure 19 - Verification failure limits

Chapter 4

Sensor Configuration

1 Sensor Configuration

The sensor configuration page can be used to set the address, name, and all other configuration parameters. It is also possible to upgrade the firmware from this page.

For a full description of each configuration setting refer to the Sensor Configuration and Calibration Guide (HD0679).

Values can be Read from or written to the sensor using “Read” and “Write” in each section (Figure 20).

The screenshot shows the 'Hydro-TestView - Sensor Configuration' window. It is divided into several sections:

- Sensor Details:** Includes fields for Address (16), Product Type (Hydro-Mix), Name (Hydro-Mix), Sensor ID (4694D8B1), and Firmware version (HS0102 v3.4.0). There is an 'Upgrade' button.
- Temperature Readings:** Displays five temperature values: Unscaled (0.0), Electronics Temp (32.7°C), Resonator Temp (31.0°C), Material Temp (31.0°C), and Ambient Temp (26.9°C).
- Input / Output:** Includes settings for Output Type (0-20mA), Output Variable 1 (Filtered Unscaled), Output Variable 2 (Material Temperature), Digital Input Use (Mois / Temp), Digital I/O Use (Unused), and Moisture calibration (Mois High %: 20.0, Mois Low %: 0.0).
- Signal Processing:** Includes settings for Unscaled Type (Mode F), Unscaled 2 Type (Mode E), Filter Time (7.5s), Slew Rate Plus (Light), Slew Rate Minus (Light), DSP (Unused), Filter Include (-5.0), and Alarm Mode (Mode F).
- Temperature:** Includes settings for Offset, Freq, Amp, and Max/Min values for Electronics, Resonator, and Material. There are 'Write' and 'Read' buttons.
- Moisture Calibration:** Includes fields for A, B, C, and D values, and a 'Read' button.
- Resonator Calibration:** Includes fields for Frequency (803.41) and Amplitude (3255.4), and a 'Read' button.
- Secondary Protocol:** Includes settings for MODBus, 19200, and None - 1 stop. There are 'Write' and 'Read' buttons.
- Resonator:** Includes a graph showing the resonator response and a 'Measure' button.

Figure 20 - Read and Write Sensor Configuration

1 Document Cross Reference

This section lists all the other documents that are referred to in this User Guide. You may find it beneficial to have a copy available when reading to this guide.

Document Number	Title
HD0679	Sensor Configuration and Calibration Guide

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Air Value	9, 20
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